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# Sweet-Potato Storage

H.C. Thompson

*Horticulturist, Office of Horticultural and Pomological Investigations*

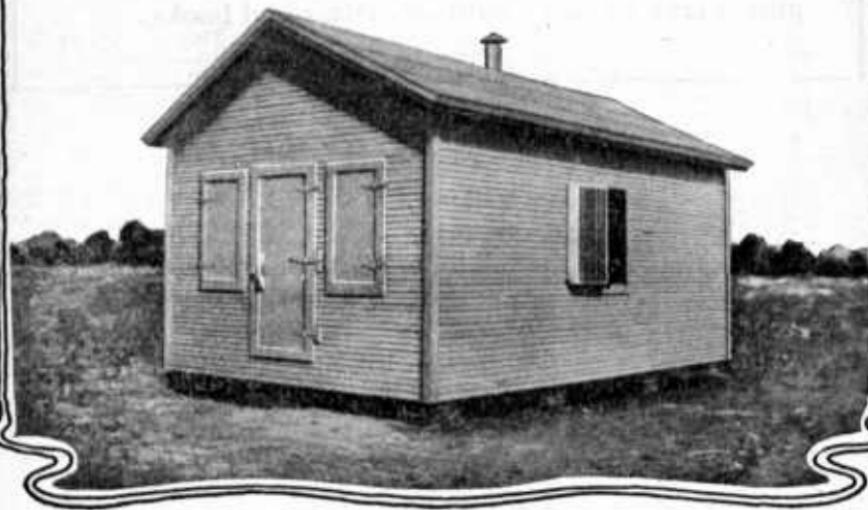
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**T**HE PROPER storage of sweet potatoes is one of the most important food-conservation measures that can be put into effect in the Southern States. No perishable product produced in the South is of as great importance as the sweet potato, and none is so poorly handled.

This bulletin describes in considerable detail the types of storage houses that have proved successful and the proper method of handling sweet potatoes from harvesting to marketing.

For those growers who are not able to build storage houses, directions are given for saving the sweet-potato crop by using outdoor cellars and banks.

# SWEET-POTATO STORAGE.<sup>1</sup>

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## IMPORTANCE OF THE SWEET-POTATO CROP.

THE SWEET POTATO is becoming each year of greater importance as a money crop in the South. Its value in 1916 was \$60,141,000, an increase of 74.6 per cent over the figures of the census of 1910. The acreage, production, and value of the crop grown in the important sweet-potato producing States in 1916 are shown in Table I.

TABLE I.—*Acreage, production, and value of sweet potatoes grown in important States and in the United States in 1916.*

State.	Acreage.	Production.	Value.	Yield per acre.	Value per acre.
		<i>Bushels.</i>		<i>Bushels.</i>	
New Jersey.....	23,000	2,300,000	\$2,700,000	100	\$120.00
Delaware.....	5,000	625,000	500,000	125	101.25
Maryland.....	9,000	1,134,000	998,000	126	110.88
Virginia.....	39,000	5,070,000	4,563,000	130	117.00
North Carolina.....	87,000	9,309,000	6,982,000	107	80.25
South Carolina.....	66,000	5,676,000	4,825,000	86	73.10
Georgia.....	94,000	7,520,000	6,001,000	80	64.80
Florida.....	25,000	2,500,000	2,150,000	100	86.00
Illinois.....	8,000	720,000	600,000	90	112.50
Missouri.....	7,000	490,000	735,000	70	105.00
Kansas.....	4,000	368,000	552,000	92	138.00
Kentucky.....	10,000	900,000	900,000	90	90.00
Tennessee.....	27,000	2,700,000	2,349,000	100	87.00
Alabama.....	85,000	6,290,000	4,655,000	74	54.76
Mississippi.....	77,000	6,314,000	4,230,000	82	54.94
Louisiana.....	64,000	5,760,000	3,802,000	90	56.40
Texas.....	80,000	7,120,000	6,408,000	89	80.10
Oklahoma.....	13,000	902,000	1,299,000	74	99.90
Arkansas.....	35,000	3,185,000	866,000	91	81.90
California.....	6,000	900,000	900,000	160	160.00
Total for the United States.....	774,000	70,955,000	60,141,000	91.7	77.70

The States showing the lowest value per acre as a rule have the lowest yield and also receive the lowest price per bushel. In general, those States storing the largest percentage of the sweet-potato crop

<sup>1</sup> The plans and lists of materials given in this bulletin were prepared by the Division of Rural Engineering of the Office of Public Roads and Rural Engineering, United States Department of Agriculture.

have the highest value per acre and receive the highest price per bushel. This is due largely to the fact that where storage facilities are available the potatoes are not forced on the market at digging time. Sweet potatoes stored in up-to-date storage houses bring a higher price on the market than those stored in banks and pits. By the adoption of the better methods of storing and marketing sweet potatoes, their value could be greatly increased without increasing the acreage or production. This is especially true in the South, where they are either rushed on the market at digging time, when the price is low, or stored in outdoor pits or banks, where a large portion of them decay. Very few of the potatoes stored in pits or banks ever reach the market, for from 25 to 50 per cent spoil, while those that remain sound are not of good quality.

Even if the pit or bank method of storage were satisfactory in other respects, it is not economical. Too much labor and expense are required to make these banks every year and to get the potatoes out of them when wanted for market. Sweet potatoes can be marketed more economically and to much better advantage from storage houses. It is not advisable to open a bank when the soil is wet or the weather cold, as these conditions injure the potatoes and cause them to decay. Outdoor pits and banks can not be depended on. In some years a very small number spoil in banks, while in other years practically the whole crop is lost. The only safe and practicable method of storing sweet potatoes is in a storage house, for then they can be taken out at any time without subjecting them to unfavorable conditions.

#### ESSENTIALS OF GOOD STORAGE.

To keep sweet potatoes in good condition they must be (1) well matured before digging, (2) carefully handled, (3) well dried or cured after being put in the house, and (4) kept at a uniform temperature after they are cured.

The grower can judge when his sweet potatoes are ripe by breaking or cutting one of them and leaving it exposed to the air for a few minutes. The cut or broken surface dries if it is mature, but the surface remains moist if it is not ready to be dug. However, in regions where early frosts occur the potatoes should be dug about the time the first hard frost is expected, regardless of their stage of maturity.

The second essential, careful handling, should be observed in digging, gathering, hauling, and unloading. Sweet potatoes should be sorted in the field and gathered in padded baskets or boxes to prevent bruising or breaking the skin. The baskets or boxes should be loaded on the wagon, hauled to the storage house, and the potatoes carefully placed in the bins. When they are to be hauled very far, a wagon with bolster springs should be used. Sweet potatoes should

never be thrown from one row to another, loaded loosely into a wagon body, or hauled in bags, because either of these practices will bruise them and afford an opportunity for disease to enter.

The third and fourth essentials thorough drying and a uniform temperature, may be secured in a storage house where artificial heat can be supplied. The house must be constructed in such a way that it can be thoroughly ventilated when necessary and yet be made nearly air tight in cold weather. These requirements are provided in the types of houses described in this bulletin.

It is good economy to build a substantial sweet-potato storage house, because it will last longer and require less attention than a cheap, poorly constructed one. It would be possible to keep the potatoes in a cheaper and less carefully constructed house, but the attention required and the additional fuel used would soon exceed the cost of the extra labor and material necessary for building the better one. The chances of loss are much greater in a poorly built than in a well-built house.

#### CONSTRUCTION OF SWEET-POTATO STORAGE HOUSES.

Sweet-potato storage houses may be built of wood, brick, hollow tile, cement, or stone. Wooden houses are preferable, because they are cheaper and easier to keep dry than the other types. It is difficult to keep moisture from collecting on the walls of a cement, stone, or brick house. Where such houses are built for sweet-potato storage they should be lined with lumber, so as to keep the air in the house from coming in contact with the masonry walls. It is best to build sweet-potato storage houses on foundations that allow a circulation of air under them. The "dugout," or house built partly under ground, is not satisfactory for storing sweet potatoes in the South, because it is practically impossible to keep this type of house dry, and moisture in the storage house will cause the crop to rot.

The foundation of the storage house may be in the form of pillars or solid walls and should be of such a height that the floor is about on the level of the bottom of the wagon bed, while the footings should be carried below the frost line or to solid ground. Girders 6 by 10 or 8 by 8 inches in size are usually placed on the pillars.

Where cement, brick, or stone foundation walls are built, they should extend 18 to 20 inches above the ground level; and plates 2 to 3 inches thick and 8 to 10 inches wide should be placed on the wall. In using walls for the foundation it is necessary to provide means for ventilation under the house. This can be done by placing small windows in the foundation every 10 to 12 feet. Even where solid outside foundation walls are used it is advisable to use pillars for the center supports, as shown in figures 1, 2, and 3. The rows of pillars should be not farther apart than 8 to 10 feet.

The principles of constructing storage houses of various sizes are very much the same; therefore, only one, the 12 by 16 foot house, will be described.

For this small storage house, having a capacity of 400 to 500 bushels, build three rows of pillars, one row under each side and one under the center of the house. Girders 6 by 10 inches in size are placed on the pillars and on these 2 by 8 inch joists, spaced 12 inches apart from center to center. The walls of the storage house are made by setting 2 by 4 inch studs on the girders every 2 feet and

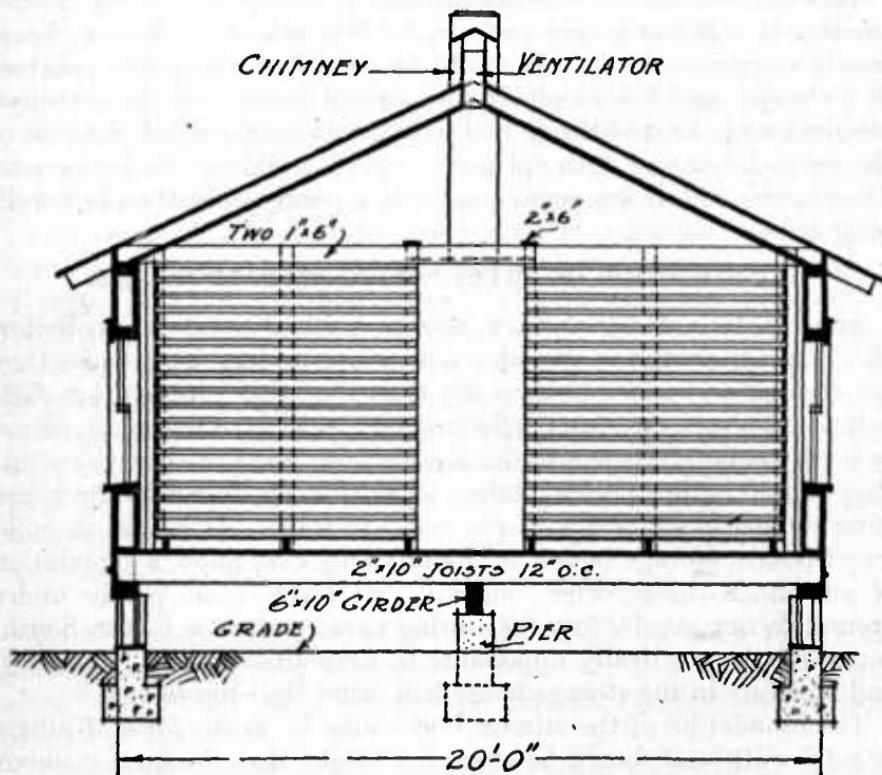


FIG. 1.—Cross section of a 20 by 40 foot sweet-potato storage house.

nailing them to the sleepers. On the outside of the studs 1 by 6 inch boards are nailed diagonally to brace the wall; over these a layer of heavy building paper is tacked and matched siding then put on. A layer of 1 by 6 inch boards is nailed on the inside of the studding, then a layer of building paper, and over this matched boards. In the lower South, the first layer of boards on the inside of the studding may be omitted so far as the control of temperature is concerned, but in regions of high humidity (near the seacoast) it is deemed advisable to use four layers of boards, two on the inside and two on the outside of the frame, as suggested above. The tighter the walls,

the less difficulty will be encountered in controlling both temperature and moisture. Two 2 by 4 inch pieces should be placed on top of the studding for eave plates, to which the rafters are nailed, as shown in figure 4. The floor is made by laying 1 by 6 inch sheathing over the joists, then a layer of heavy building paper and over this 1 by 4 inch tongue-and-groove flooring. The building may be covered with shingles, roofing paper, galvanized iron, or any other kind of roofing material; but galvanized iron is to be preferred, because it is durable and lessens danger from fire. Use 2 by 4 inch scantling for rafters and make the roof tight to keep out the cold. The rafters should be

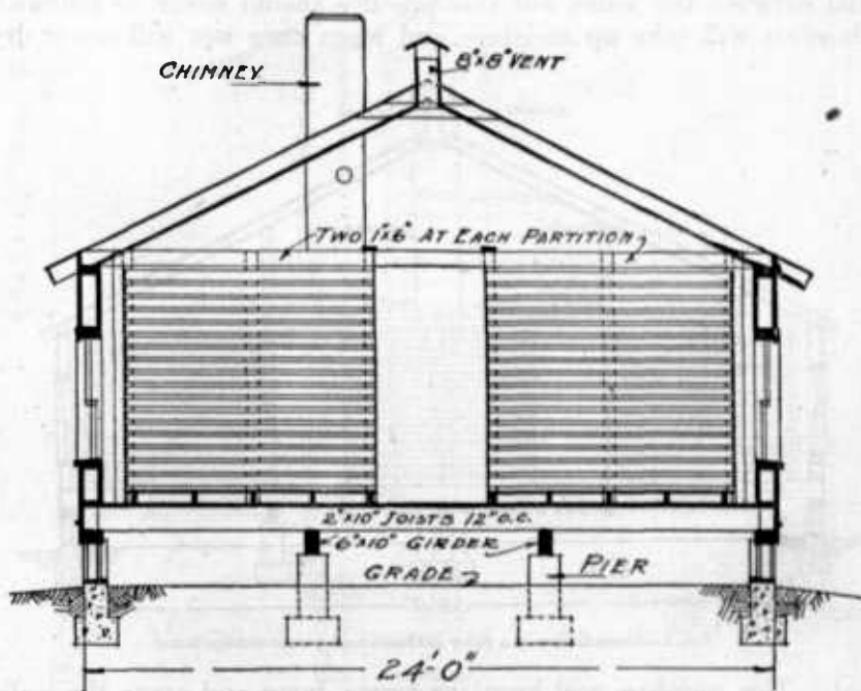


FIG. 2.—Cross section of a 24 by 60 foot sweet-potato storage house.

cut to fit over the plate at the lower end and to fit snugly against the ridgepole at the upper end. On the outside of the rafters put a layer of 1 by 6 inch sheathing, then a layer of building paper, then another layer of 1 by 6 inch sheathing, and over this the roofing material. On the inside of the rafters nail a layer of 1 by 6 inch sheathing, then a layer of heavy building paper, and over this a layer of tongue-and-groove ceiling. If desired, joists may be placed across the building on top of the eave plates, and the sheathing, paper, and tongue-and-groove material nailed to the under side of them instead of to the rafters. These joists, if securely nailed to the plate, will serve for tying the sides of the building together, as well as for carrying

the insulated ceiling. In a large house this method of ceiling is very satisfactory, as it gives loft space above the storage room and requires less ceiling material.

The sides of the building should be tied together, to prevent spreading. This can be done by nailing 2 by 4 inch pieces to the plates or to the lower ends of the rafters. It would be an advantage to have these pieces over the bin supports.

The space between the walls should be left open, because any material used to keep out the cold will absorb moisture. Many storage houses have been built with sawdust, shavings, or similar material between the walls, but this practice should never be followed. Sawdust will take up moisture and when once wet will never dry

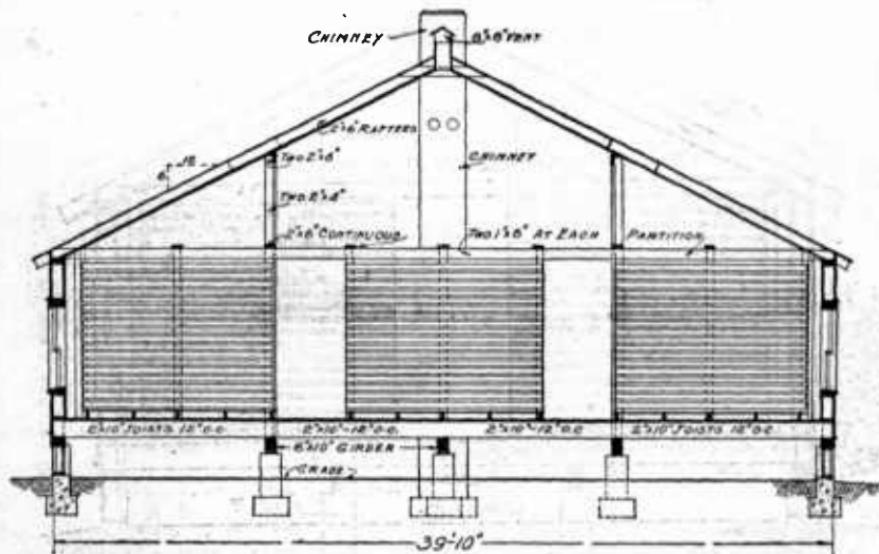


FIG. 3.—Cross section of a 40 by 100 foot sweet-potato storage house.

out. This moisture will keep the house damp and cause the walls to rot. The air space is a good insulator if the walls are made tight, and they will be tight if the plans given in this bulletin are followed.

Thorough ventilation is necessary in a storage house. This is provided by means of windows, doors, and ventilators in the floor and through the roof, as shown in figures 1 to 3, 5, and 7 to 10. The openings in the floor around the stove prevent overheating the potatoes near the stove. The bottom of the windows should be within 18 inches or 2 feet of the floor. The windows and doors must be made so as to close tightly to keep out the cold. A good plan is to make the doors and windows like those shown in the title-page illustration. All windows should be made to open from the outside, as the bins will interfere with opening them from the inside.' Where

glass windows are used, outside shutters are put on, as shown in figure 6, and these should be well padded. Some of the windows should be made of glass, so as to admit light without letting in cold air, as it is necessary to have light when working in the house and in cold weather the house should not be kept open. All of the openings must be made so they can be closed quickly and tightly whenever necessary. The ventilators in the roof should extend through the

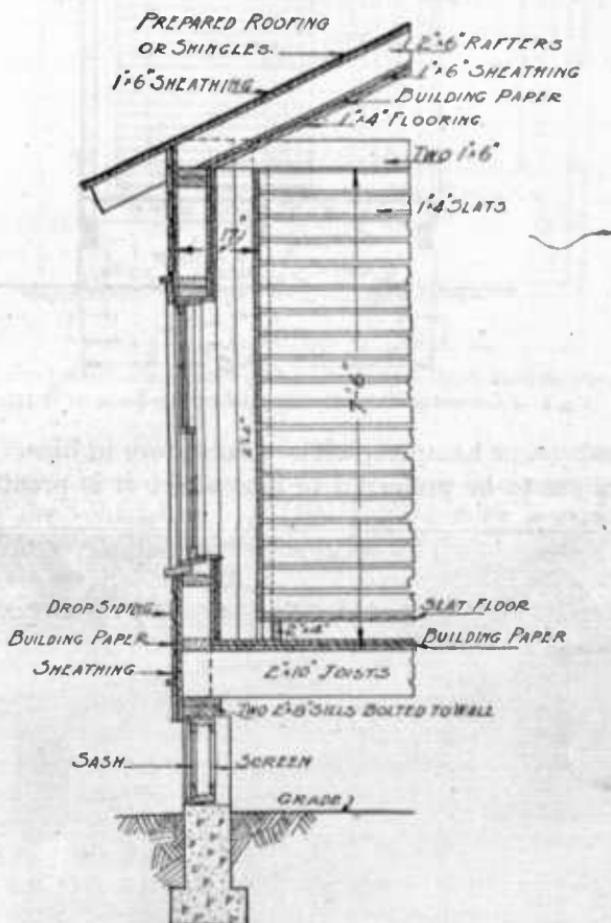


FIG. 4.—Details of construction of sweet-potato houses of the types shown in figures 1 to 3, 5, and 7 to 9.

ceiling, so as to carry out the warm air as it rises. Ventilators 8 by 8 or 10 by 10 inches, made of wood, are very satisfactory. These should be provided with a roof to keep out rain and at the bottom end with a tight-fitting shutter, which can be closed in cold weather. The ventilators in the floor may be holes 12 by 12 inches, but they should be provided with wire-netting screens and tight-fitting covers, that they may be closed when necessary.

The arrangement of the interior of the house depends upon the methods of storage used. Some growers store the potatoes in boxes,

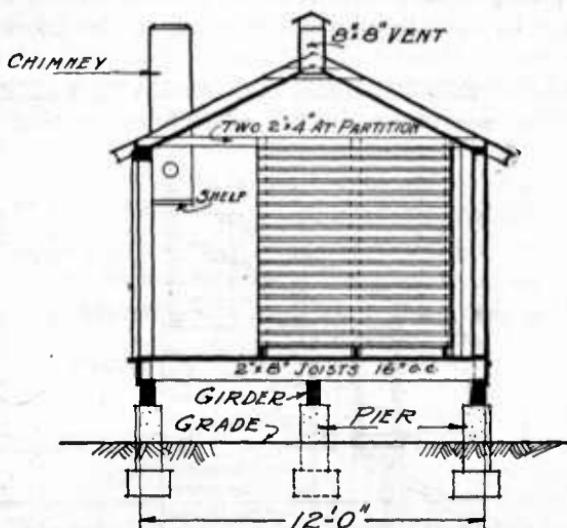


FIG. 5.—Cross section of a small sweet-potato storage house (12 by 16 feet).

crates, baskets, or hampers, while others store in bins. The smaller containers are to be preferred to bins where it is practicable to use



FIG. 6.—A small sweet-potato storage house (12 by 24 feet) built with cheap lumber and covered with roofing paper. This house has been used for several years and has given entire satisfaction.

them, because they eliminate considerable handling and reduce the amount of decay. Many growers store in the hampers that are to

be used for marketing the potatoes. This is a satisfactory plan, as it requires no outlay of money for storage receptacles, and the packages for shipping must be provided in any event if the crop is to be marketed. Some growers have bushel boxes made for the special

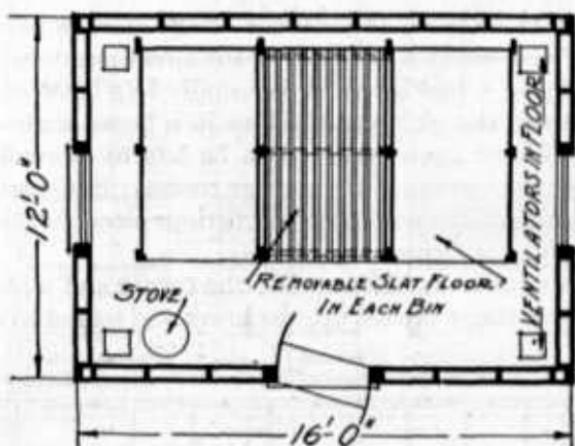


FIG. 7.—Floor plan of a small sweet-potato storage house (12 by 16 feet) suitable for a farmer who has 300 to 500 bushels of sweet potatoes to store.

purpose of storing sweet potatoes, while others employ various types of used crates. In using any type of package it is necessary to provide means for ventilation. A false slatted floor is often made by nailing 1 by 4 or 1 by 6 inch boards to 2 by 4 inch scantling. An inch

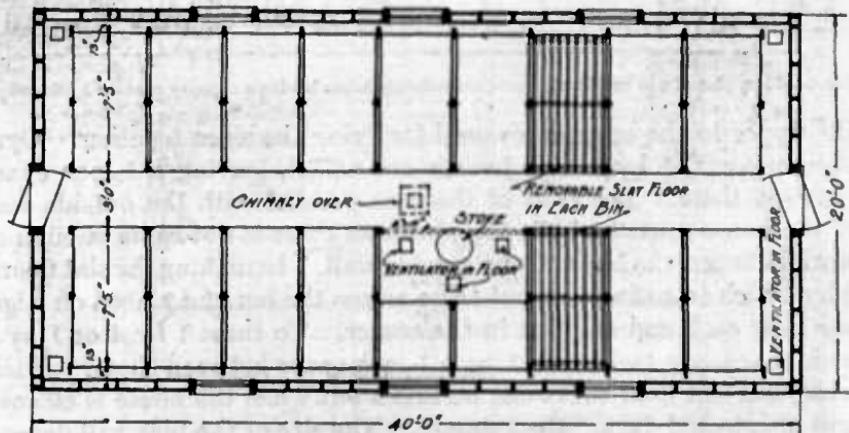


FIG. 8.—Floor plan of a 20 by 40 foot sweet-potato storage house having a capacity of 2,000 to 2,500 bushels.

space should be left between the boards to allow the circulation of air. A little space should be left between the stacks of boxes, baskets, crates, or hampers. Where these smaller containers are used, especially when the same package is employed for shipping the crop,

it is much easier to disinfect the storage house by spraying than when bins are used. Another advantage in using them is that when decay sets in it usually spreads only to the potatoes in the single package, whereas in the bin it might spread throughout the entire pile.

If bins are to be used, the interior of the storage house should be arranged for convenience in handling the sweet potatoes. A passageway about  $3\frac{1}{2}$  to 4 feet in width is usually left between the rows of bins, or between the wall and the bins in a house with only one row of bins. Sufficient open space must be left to allow access to the ventilators in the corners of the storage rooms. Satisfactory arrangements of passageways and bins for various-sized houses are shown in the floor plans of figures 7 to 10.

The bins are made as follows: For the corner and middle supports, 2 by 4 inch scantlings are set up, the lower end nailed to the floor and

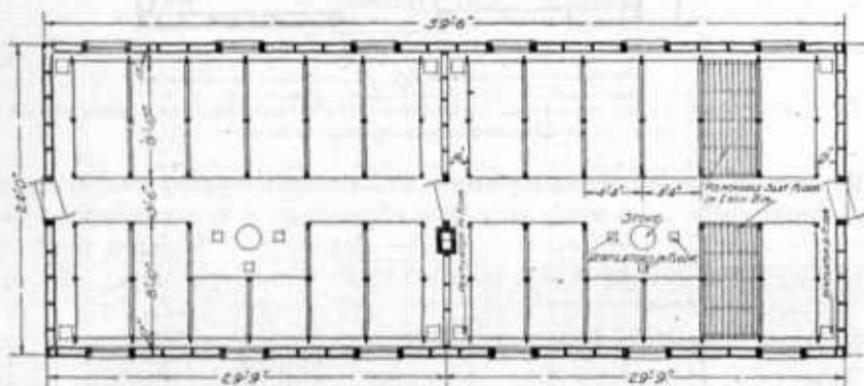


FIG. 9.—Floor plan of a 24 by 60 foot sweet-potato storage house having a capacity of about 5,200 bushels.

the upper to the crosspieces used for tying the sides together. Over the supports, 1 by 4 inch boards are nailed, leaving a 1-inch space between them. The ends of the bins parallel with the outside wall of the house must be built first, because there is not room enough to work between the bin and the outside wall. In making the slat floors, 2 by 4 inch scantlings are cut to go across the bin and placed on edge, one near each end and one in the center. To these 1 by 4 or 1 by 6 inch boards are tacked, leaving a 1-inch space between them. If left loose, the slat floor racks can be taken out when the house is cleaned and disinfected during the summer. The size of the bins will depend somewhat on the arrangement and size of the house, but it is not advisable to make them more than 5 feet wide, 6 to 8 feet deep, and 10 to 12 feet long. There should be a 6 to 12 inch space between the walls and the bins, to allow a circulation of air. It is necessary to slat up both sides of the scantlings between the bins, in order to leave

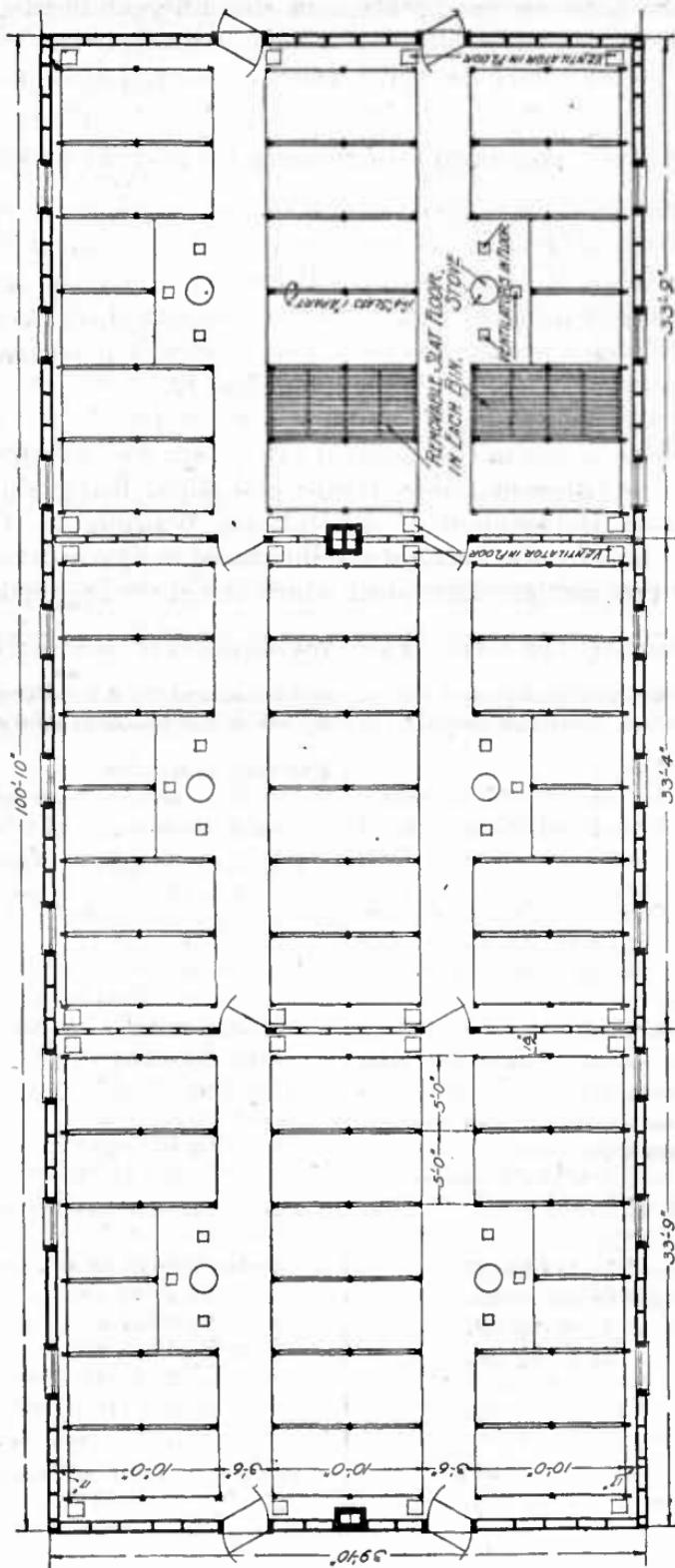


FIG. 10.—Floor plan of a 40 by 100 foot sweet-potato storage house having a capacity of 15,500 bushels.

an air space between the potatoes in the different bins. The construction here described allows a 4-inch space between the bins, a 4-inch space under the bins, and 6 inches between the bins and outside walls.

#### MATERIALS REQUIRED FOR HOUSES OF DIFFERENT SIZES.

It is not practicable to give the cost of a sweet-potato storage house because of the difference in the price of materials and labor in the various sections of the country. However, given the amount of materials required, it will be easy for one to secure estimates on the cost of building a storage house. The estimates given are for the houses illustrated in figures 1 to 3, 5, and 7 to 10.

Anyone who contemplates building a sweet-potato storage house after the plans shown in this bulletin can obtain working drawings by writing to the Office of Public Roads and Rural Engineering of the United States Department of Agriculture, Washington, D. C., for any of the plans for the four houses illustrated in figures 1 to 3, 5, and 7 to 10. In requesting plans, state which one of the four is desired.

#### MATERIALS REQUIRED FOR A 12 BY 16 FOOT STORAGE HOUSE OF 500 BUSHELS CAPACITY.

Quantities are for dimensions shown on the drawing and must be altered if dimensions are changed. Footings should be carried below frost line or to solid ground.

##### Concrete.

*Mixture.*—One part Portland cement, three parts sand, and five parts gravel or broken stone; or, one part Portland cement and six parts bank-run gravel. Quantities: Cement, 6 sacks; sand, 20 cubic feet; gravel, 31 cubic feet. Or, cement, 6 sacks, bank-run gravel, 1.5 cubic yards.

##### Chimney. 190 bricks.

*Mixture for mortar.*—One part Portland cement, three parts sand. Cement, 1 sack; sand, 4 cubic feet. 1—6" terra-cotta thimble. 6 linear feet of 8" by 8" terra-cotta flue lining.

##### Lumber.

*Girders.*—2—6" by 10" by 12'.

3—6" by 10" by 16'.

*Joists.*—17—2" by 8" by 12'.

*Studs.*—19—2" by 4" by 16'.

*Plates.*—6—2" by 4" by 16'.

6—2" by 4" by 12'.

*Ties.*—4—2" by 4" by 12'.

*Rafters.*—11—2" by 4" by 16'.

1—1" by 6" by 18' (ridge.)

##### Lumber—Continued.

*Sheathing* (includes 20 per cent waste).—  
2,084 feet b. m. 1" by 6".

*Flooring* (includes 25 per cent waste).—  
1,000 feet b. m. 1" by 4", tongue and groove.

*Drop siding.*—615 feet b. m. 1" by 6"  
(includes 20 per cent waste).

*Platform.*—3—2" by 4" by 12'.

1—2" by 8" by 14'.

3—2" by 8" by 12'.

1—4" by 4" by 6'.

1—2" by 12" by 12'.

2—1" by 10" by 14'.

*Trim* (surfaced 4 sides).—4—1 $\frac{1}{2}$ " by 4 $\frac{1}{2}$ "  
by 18'.

4—1 $\frac{1}{2}$ " by 4 $\frac{1}{2}$ " by 14'.

2—1" by 6" by 16'.

2—1" by 8" by 16'.

2—1" by 8" by 12'.

2—1" by 6" by 18'.

70 linear feet 1 $\frac{1}{2}$ " by 2 $\frac{1}{2}$ " drip molding.

*Ventilators in roof* (surfaced 4 sides).—  
1—1" by 12" by 14'.

**Lumber—Continued.****Bins.**—6—2" by 4" by 16'.

3—2" by 4" by 12'.

2—2" by 2" by 16'.

6—1" by 2" by 16'.

34—1" by 4" by 12'.

65—1" by 4" by 14'.

**Chimney.**—1—2" by 6" by 12' (platform).**Roof covering.**—As desired, for 290 square feet.**Building paper.**—40 squares.**Miscellaneous.**

2 double-hung sash and frames, for 12 lights 9" by 12" glass.

1 No. 2 glazed door, 3' by 7', 6 lights 8" by 10" glass.

1 frame for glazed door 3' by 7'.

3 pairs 6" galvanized T hinges.

1 pair 2½" by 2½" galvanized hinges.

1 pair 3½" by 3½" loose pin butts.

**Miscellaneous—Continued.**

1—2" cleat.

1—2" window pulley.

12 feet of ¼" rope.

4 bolts ¾" by 3", with 4" rings.

9—½" by 24" bolts, nuts, and washers.

4 square feet ½" mesh wire cloth.

2—½" by 2½" wrought-steel straps.

4—½" by 3" lag screws.

4 feet galvanized-iron flashing, 12" wide.

**Fastenings for windows, doors, and shutters, as desired.****Nails.**

4 pounds 20-penny.

17 pounds 10-penny.

85 pounds 8-penny.

10 pounds 6-penny.

3 pounds 8-penny finishing.

**Paint.**

For three outside coats, 4 gallons.

**MATERIALS REQUIRED FOR A 20 BY 40 FOOT STORAGE HOUSE OF 2,500 BUSHELS CAPACITY.**

Quantities are for dimensions shown on the drawings and should be altered if dimensions are changed. Footings should be carried below frost line or to solid ground.

**Concrete.**

**Mixture.**—One part Portland cement, three parts sand, and five parts gravel or broken stone; or, one part Portland cement and six parts bank-run gravel. Quantities:

Constituents.	Walls.	Piers.
Cement.....	79 sacks.....	7 sacks.
Sand.....	8.7 cu. yds....	21 cu. ft.
Gravel.....	14.5 cu.yds....	34 cu. ft.
Or—		
Cement.....	79 sacks.....	7 sacks.
Bank-run gravel....	19 cu. yds.....	1.8 cu. yds.

**Chimney.** 500 bricks.

**Mixture for mortar.**—One part Portland cement, three parts sand. Cement, 3 sacks; sand, 10 cubic feet.  
1—6" terra-cotta thimble.  
18 linear feet of 8" by 8" terra-cotta flue lining.

**Lumber.****Girders.**—2—6" by 10" by 16'.

1—6" by 10" by 8'.

**Sills.**—24—2" by 8" by 12'.**Lumber—Continued.****Studs.**—26—2" by 4" by 18' (sides).

3—2" by 4" by 18' (over windows).

12—2" by 4" by 18'.

1—2" by 4" by 16' (ends).

2—2" by 4" by 12'.

4—2" by 4" by 10'.

1—2" by 4" by 12' (over doors).

**Plates.**—24—2" by 4" by 10' (sides).

12—2" by 4" by 10' (ends).

**Rafters.**—44—2" by 6" by 14'.

2—1" by 6" by 12' (ridge).

2—1" by 6" by 10' (ridge).

**Joists.**—62—2" by 10" by 10'.

160 linear feet 1" by 3" (bridging).

**Sheathing** (includes 20 per cent waste).—

2,568 feet b. m. 1" by 6" (roof).

1,032 feet b. m. 1" by 6" (ceiling).

1,200 feet b. m. 1" by 6" (inside walls).

1,344 feet b. m. 1" by 6" (outside walls).

960 feet b. m. 1" by 6" (subflooring).

**Drop siding** (includes 20 per cent waste).—1,344 feet b. m. 1" by 6".

**Lumber—Continued.**

*Flooring* (tongue and groove, includes 25 percent waste).—  
 1,075 feet b. m. 1" by 4" (ceiling).  
 1,400 feet b. m. 1" by 4" ((walls).  
 1,000 feet b. m. 1" hy 4" (floor).  
*Ventilators in roof.*—2—1" by 12" by 14' (surfaced 4 sides).  
*Trim* (surfaced 4 sides).—9—1½" by 4½" by 14' (windows and doors).  
 4—1½" by 4½" by 18' (corners).  
 4—1½" by 4½" by 14' (end fascia).  
 12—1" by 8" by 10' (baseboard).  
 4—1" by 6" by 12' (ridge).  
 4—1" by 6" by 10' (ridge).  
 170 linear feet 1½" by 2½" (drip molding).  
*Bins.*—29—2" by 4" by 18' (studs).  
 10—2" by 2" hy 18' (nailing strips).  
 20—1" by 6" by 12' (ties at partitions).  
 20—1" by 6" hy 16'.  
 32—1" by 2" by 18' (cleats for loose boards).  
 8—2" by 6" by 10' (over bins).  
 18—2" by 4" by 12' (under removable floors).  
 418—1" by 4" by 16' (slats for bin sides).  
 72—1" by 4" by 16' (slats for removable floors).  
 162—1" by 4" by 16' (loose slats).  
*Screens* (surfaced 4 sides, for cellar windows).—3—1½" by 2" by 16'.  
*Battens* (for shutters and doors).—8—1" by 6" by 10'.  
*Platforms.*—5—2" by 8" by 12' (sides and floor).  
 1—2" hy 8" by 14' (sides).  
 2—2" by 12" by 12' (carriages).  
 2—4" by 4" by 12' (posts).  
 2—2" by 4" by 12' (nailing strip).

**Lumber—Continued.**

3—2" by 4" by 14' (joists). 2—2" hy 10" by 14' (treads).  
*Roof covering.*—As desired, for 1,070 square feet.  
**Building paper.**—58 squares.  
**Miscellaneous.**  
 6 cellar frames and sash for 3 lights 8" by 10" glass.  
 6 double-hung sash and frames for 12 lights 9" by 12" glass.  
 2 No. 2 glazed doors, 3' by 7', 6 lights 8" hy 10" glass.  
 2 frames, for glazed doors, 3' by 7'.  
 8 pairs 2½" by 2½" galvanized hinges.  
 8 pairs 6" galvanized T hinges.  
 2 pairs 3½" by 3½" loose pin butts.  
 2—2" window pulleys.  
 2 screw eyes.  
 2—2" cleats.  
 24—feet of 1" rope.  
 4 bolts, ½" by 3", with 4" rings.  
 30 square feet 1" mesh galvanized-wire cloth.  
 24—¾" by 18" bolts, nuts, and washers.  
 6 linear feet galvanized-iron flashing, 12" wide.  
 4—1" by 2½" wrought-steel straps.  
 8—1" hy 3" lag screws.  
 Fastenings for windows, doors, and shutters, as desired.

**Nails.**

2 pounds 30-penny.  
 10 pounds 20-penny.  
 30 pounds 10-penny.  
 300 pounds 8-penny.  
 100 pounds 6-penny.  
 10 pounds 8-penny finishing.

**Paint.**

For three outside coats, 8 gallons.

**MATERIALS REQUIRED FOR A 24 BY 60 FOOT STORAGE HOUSE OF ABOUT 5,200 BUSHELS CAPACITY.**

Quantities are for dimensions shown on the drawings and should be altered if dimensions are changed. Footings should be carried below frost line or to solid ground.

**Concrete.**

*Mixture.*—One part Portland cement, three parts sand, and five parts gravel or broken stone; or, one part Portland cement and six parts bank-run gravel. Quantities:

Constituents.	Walls.	Piers.
Cement.....	100 sacks.....	15 sacks.
Sand.....	12 cu. yds.....	1.5 cu. yds.
Gravel.....	20 cu. yds.....	2.6 cu. yds.
Or—		
Cement.....	100 sacks.....	15 sacks.
Bank-run gravel.	24 cu. yds.....	3.3 cu. yds.

**Chimney.** 500 bricks.

*Mixture for mortar.*—One part Portland cement, three parts sand. Cement, 3 sacks; sand, 10 cubic feet. 2—6" terra-cotta thimbles. 38 linear feet 8" by 8" terra-cotta flue lining.

**Lumber.**

*Girders.*—4—6" by 10" by 18'.

3—6" by 10" by 16'.

*Sills.*—28—2" by 8" by 12'.

*Studs.*—62—2" by 6" by 18'.

4—2" by 6" by 14'.

*Plates.*—42—2" by 6" by 12'.

*Rafters.*—62—2" by 6" by 16'.

6—1" by 6" by 12' (ridgo).

*Joists.*—48—2" by 10" by 16'.

24—2" by 10" by 18'.

400 linear feet 1" by 3" (bridging).

*Sheathing.*—11,220 feet b. m. 1" by 6" (includes 20 per cent waste).

*Flooring* (tongue and groove, includes 25 per cent waste).—6,500 feet b. m. 1" by 4".

*Trim* (surfaced 4 sides).—12—1½" by 4½" by 14'.

4—1½" by 4½" by 18'.

4—1" by 6" by 16'.

14—1" by 8" by 12'.

200 linear feet 1½" by 2½" drip molding.

**Lumber—Continued.**

*Ventilators in roof.*—4—1" by 12" by 14' (surfaced 4 sides).

*Bins.*—632—1" by 4" by 18'.

95—1" by 4" by 16'.

40—2" by 4" by 18'.

14—2" by 2" by 18'.

66—1" by 6" by 12'.

40—1" by 2" by 16'.

8—2" by 6" by 10'.

2—2" by 6" by 18'.

*Drop siding.*—2,000 feet b. m. 1" by 6" (includes 20 per cent waste).

*Dividing partitions.*—10—2" by 4" by 18'.

5—2" by 4" by 12'.

2—2" by 4" by 14'.

*Lining.*—Included under "Flooring."

*Screens* (for cellar sash).—6—3" by 2" by 16' (surfaced 4 sides).

*Platforms.*—6—2" by 4" by 12'.

2—2" by 8" by 14'.

6—2" by 8" by 12'.

1—4" by 4" by 12'.

2—2" by 12" by 12'.

4—2" by 10" by 14'.

*Roof covering.*—As desired, for 1,860 square feet.

*Building paper.*—103 squares.

**Miscellaneous.**

12 cellar frames and sash, for 3 lights 8" by 10" glass.

12 double-hung sash and frames for 12 lights, 9" by 12" glass.

2 No. 2 glazed doors, 3' by 7', 6 lights 8" by 10" glass.

2 frames for glazed doors 3' by 7', 6" studs.

16 pairs 2½" by 2½" galvanized hinges.

2 pairs 3½" by 3½" galvanized loose-pin butts.

15 pairs 6" T hinges.

4—2" window pulleys.

4 screw eyes.

64 feet of ¼" rope.

**Miscellaneous—Continued.**

- 4—2" cleats.  
 8 bolts  $\frac{3}{8}$ " by 3", with 4" rings.  
 50 square feet  $\frac{1}{4}$ " mesh galvanized-wire cloth.  
 8 feet galvanized-iron flashing, 12" wide.  
 40— $\frac{1}{2}$ " by 18" bolts, nuts, and washers.  
 4— $\frac{1}{2}$ " by 2 $\frac{1}{2}$ " by 18" wrought-steel straps.  
 8— $\frac{1}{2}$ " by 3" lag screws.

**Miscellaneous—Continued.**

- Fastenings for windows, doors, and shutters, as desired.

**Nails.**

- 10 pounds 20-penny.  
 180 pounds 10-penny.  
 400 pounds 8-penny.  
 50 pounds 6-penny.  
 15 pounds 8-penny finishing.

**Paint.**

- For three outside coats, 10 gallons.

**MATERIALS REQUIRED FOR A 40 BY 100 FOOT STORAGE HOUSE OF ABOUT 15,500 BUSHELS CAPACITY.**

Quantities are for dimensions shown on the drawings and should be altered if dimensions are changed. Footings should be carried below frost line or to solid ground.

**Concrete.**

*Mixture.*—One part Portland cement, three parts sand, and five parts gravel or broken stone; or, one part Portland cement, and six parts bank-run gravel. Quantities:

Constituents.	Walls.	Piers.
Cement.....	185 sacks.....	34 sacks.
Sand.....	21 cu. yds.....	4 cu. yds.
Gravel.....	34.5 cu. yds.....	6.5 cu. yds.
Or—		
Cement.....	185 sacks.....	34 sacks.
Bank-run gravel....	44 cu. yds.....	8 cu. yds.

**Chimney.** 1,700 bricks.

*Mixture for mortar.*—One part Portland cement, three parts sand. Cement, 10 sacks; sand, 2 cu. yds.  
 6—6" terra-cotta thimbles.  
 36 linear feet 8" by 8" terra-cotta flue lining.

**Lumber.**

*Girders.*—6—6" by 10" by 10'.

14—6" by 10" by 16'.

1—6" by 10" by 14'.

*Sills.*—35—2" by 8" by 16'.

*Studs.*—62—2" by 6" by 18' (sides).

9—2" by 6" by 18' (over windows).

22—2" by 6" by 18' } (ends).

20—2" by 6" by 10' } (ends).

2—2" by 6" by 12' (over doors).

*Plates.*—52—2" by 6" by 12' (sides).

16—2" by 6" by 10' (ends).

*Bin posts under purlins.*—36—2" by 4" by 16'.

24—2" by 4" by 14'.

**Lumber—Continued.**

*Purlins.*—24—2" by 6" by 12'.  
 12—2" by 6" by 10'.

*Braces under purlins.*—12—2" by 6" by 14'.

*Rafters.*—130—2" by 6" by 12'.  
 130—2" by 6" by 14'.

12—1" by 6" by 10' (ridge).

*Joists.*—202—2" by 10" by 12'.  
 101—2" by 10" by 18'.

800 linear feet 1" by 3" (bridging).

*Sheathing* (includes 20 per cent waste).—11,870 feet b. m. 1" by 6" (roof).

5,280 feet b. m. 1" by 6" (ceiling).

2,920 feet b. m. 1" by 6" (inside walls).

3,450 feet b. m. 1" by 6" (outside walls).

4,800 feet b. m. 1" by 6" (sub-floor).

*Drop siding* (includes 20 per cent waste).—3,400 feet b. m. 1" by 6".

*Flooring* (tongue and groove, includes 25 per cent waste).—5,500 feet b. m. 1" by 4" (ceiling).

3,440 feet b. m. 1" by 4" (walls).

5,000 feet b. m. 1" by 4" (walls).

*Trim* (surfaced 4 sides).—22—1 $\frac{1}{2}$ " by 4 $\frac{1}{2}$ " by 14' (windows and doors).

5—1 $\frac{1}{2}$ " by 4 $\frac{1}{2}$ " by 18' (corners).

8—1 $\frac{1}{2}$ " by 4 $\frac{1}{2}$ " by 12' (end fascia).

24—1" by 8" by 12' (baseboards).

18—1" by 6" by 12' (roof ridge).

350 linear feet 1 $\frac{1}{2}$ " by 2 $\frac{1}{2}$ " drip molding.

**Lumber—Continued:**

*Ventilators in roof.*—6—1" by 12" by 14' (surfaced 4 sides).

**Dividing partitions.—**

8—2" by 4" by 10' (plates).

8—2" by 4" by 18'

8—2" by 4" by 16'

12—2" by 4" by 14' } (stud\$).

8—2" by 4" by 12'

8—2" by 4" by 10'

2—2" by 4" by 12' (over doors).

2,655 feet b. m. 1" by 4" tongue-and-groove flooring (includes 25 per cent waste).

*Screens (at cellar windows).*—9— $\frac{1}{2}$ " by 2" by 16' (surfaced 4 sides).

*Bins.*—72—2" by 4" by 18' (stud\$).

21—2" by 2" by 18' (nailing strips).

21—1" by 6" by 18'

42—1" by 6" by 12' }

21—1" by 6" by 16' } (1)

42—1" by 6" by 10'

118—1" by 2" by 18" (cleats for loose boards).

42—2" by 6" by 12' }

21—2" by 6" by 10' } (over bins).

77—2" by 4" by 12' (removable floors).

2,166—1" by 4" by 10' } (slats for bin  
114—1" by 4" by 12' } sides).

462—1" by 4" by 10' } (slats for re-  
66—1" by 4" by 12' } movable floors).

1,083—1" by 4" by 10' (loose slats).

*Battens* (for shutters and outside doors).—22—1" by 6" by 10'.

*Platforms.*—8—2" by 4" by 10' (nailing strips).

3—2" by 12" by 14' (carriages).

4—4" by 4" by 12' (posts).

1—2" by 8" by 14' } (sides and floor-

28—2" by 8" by 10' } ing).

**Lumber—Continued.**

10—2" by 4" by 14' (joists).

3—2" by 10" by 14' (treads).

*Roof covering.*—As desired, for 4,950 square feet.

*Building paper.*—230 squares.

**Miscellaneous.**

18 cellar frames and sash, for 3 lights 8" by 10" glass.

18 double-hung sash and frames, for 12 lights 9" by 12" glass.

4 No. 2 glazed doors, 3' by 7', 6 lights 8" by 10" glass.

4 frames for glazed doors, 3' by 7', 6" studs.

4 frames for doors, 3' by 7', 4" studs.

24 pairs  $2\frac{1}{2}$ " by  $2\frac{1}{2}$ " galvanized hinges.

26 pairs 6" galvanized T hinges.

4 pairs  $3\frac{1}{2}$ " by  $3\frac{1}{2}$ " loose-pin butts.

6—2" window pulleys.

6 screw eyes.

6—2" cleats.

100 linear feet of  $\frac{1}{2}$ " rope.

24— $\frac{1}{2}$ " by 3" bolts, with 4" rings.

110 square feet of  $\frac{1}{2}$ " mesh galvanized wire cloth.

50— $\frac{1}{2}$ " by 18" bolts, nuts, and washers.

40 linear feet of galvanized iron flashing, 12" wide.

8— $\frac{1}{2}$ " by  $2\frac{1}{2}$ " wrought-steel straps.

16— $\frac{1}{2}$ " by 3" lag screws.

Fastenings for windows, doors, and shutters, as desired.

**Nails.**

12 pounds 30-penny.

25 pounds 20-penny.

77 pounds 10-penny.

930 pounds 8-penny.

190 pounds 6-penny.

30 pounds 8-penny finishing.

**Paint.**

For three outside coats, 20 gallons.

<sup>1</sup> Ties at partitions. Stagger joints, using 12's with 18's and 10's with 10's.

## UTILIZING ABANDONED TENANT HOUSES, WAREHOUSES, AND OTHER STRUCTURES FOR STORING SWEET POTATOES.

On many farms in the South there are abandoned tenant houses and various other buildings that could be converted into sweet-potato storage houses at very little expense. In many towns there are warehouses, store buildings, and other structures that could be utilized to

advantage for storing sweet potatoes. Where such structures are available on the farms or in towns they should be utilized before erecting new houses. The same methods of insulating and ventilating should be used in remodeling old structures as are recommended for new sweet-potato storage houses. Where the interior of the house to be remodeled is not already sheathed it is advisable to nail a layer of 1 by 4 or 1 by 6 inch boards on the studding, then a layer of building paper, and over this matched boards, as shown in figure 4. If the interior is sheathed with only one layer of boards it is a good plan to put on a layer of building paper and then set 2 by 4 inch scantlings against the walls. On these tack another layer of paper and over this a layer of matched 1 by 4 or 1 by 6 inch boards. The tighter the house is made, the less attention is required to keep the temperature and moisture under proper control.

Where only a few bushels of sweet potatoes are to be stored they may be kept in a loft over the kitchen or in any place in the house where the temperature is quite uniform (between 50° and 60° F.) and the air rather dry.

#### VARIETIES OF SWEET POTATOES FOR MARKET.

The varieties of sweet potatoes to grow depend upon the market to be supplied. The northern and eastern markets prefer a dry, mealy potato, such as the Big-Stem Jersey, Yellow Jersey, Early Carolina, and Gold Coin, although such varieties as the Nancy Hall, Dooley, and Triumph have been sold to good advantage on the central western markets; in fact, it is reported that southern-grown sweet potatoes of the Nancy Hall variety commanded the highest price on one of the largest markets in 1915 and 1916. The main reason that southern-grown sweet potatoes have not been in greater demand on the northern markets is because they have been poorly graded and packed. The markets of the South prefer the moist varieties, such as Nancy Hall, Dooley, Pumpkin Yam, Southern Queen, Georgia Yam, and Porto Rico. The Nancy Hall is grown on a larger scale than any other variety. The Porto Rico is becoming very popular, and large quantities are being planted in regions where it is well known. The Triumph, a dry, white-fleshed sweet potato, is grown to some extent for shipping to northern markets early in the season.

The southern farmers should supply their own markets before trying to ship their potatoes to northern markets. During late winter and early spring many large towns and cities of the South are poorly supplied, because of lack of storage facilities. With storage houses, these markets could be supplied with southern-grown potatoes throughout the season. The markets of the West will take the moister fleshed potatoes grown in the South, and a good trade could

be built up in this region if the growers would use greater care in grading and packing.

While the varieties of sweet potatoes now grown in the South are preferred by the southern people, the dry, mealy roots sell best in the markets of the North. The grower should aim to give the consumers what they want, and for northern markets the dry or semimoist varieties should be grown, regardless of the grower's preference.

#### HARVESTING SWEET POTATOES.

Careful handling is one of the essentials in keeping sweet potatoes, and there is no more important place to practice it than in the field at digging time. The implement used to dig sweet potatoes should

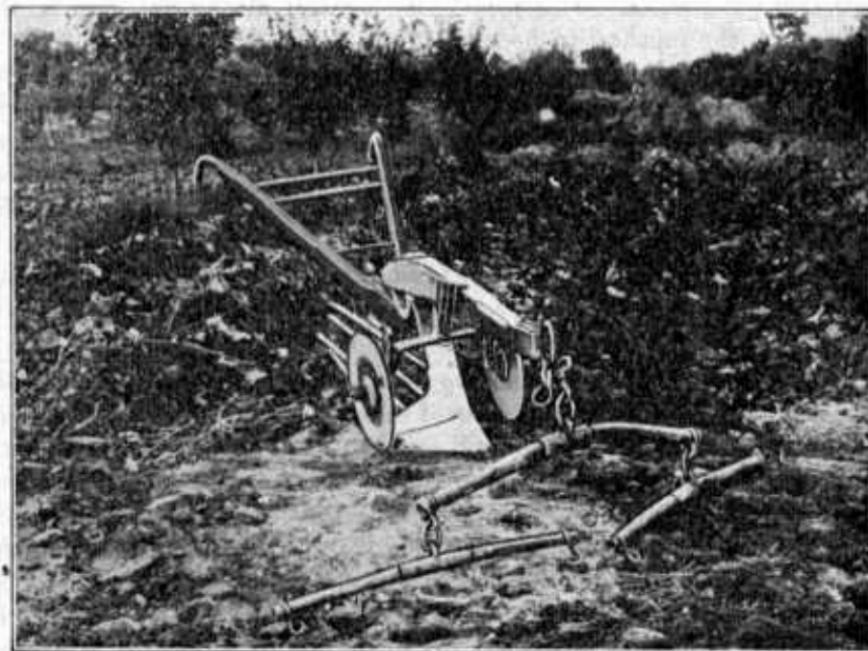


FIG. 11.—A type of digger with rolling colters attached to the beam, often used for digging sweet potatoes.

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be one that does not cut or bruise the roots. One of the best types of diggers is a plow with rolling colters on the beam to cut the vines and with reds attached to the moldboards to free the roots from the soil and vines (fig. 11). A "middle buster" is also a good implement for digging sweet potatoes. After the potatoes are dug they should be scratched out by hand and allowed to remain exposed long enough to dry. They should never be thrown from one row to another, thrown loose into the wagon bed, or put into bags. The digging should be done, if possible, when the weather is bright and the soil dry.

Sweet potatoes should be graded in the field, in order to reduce the cost of handling to a minimum. A good plan is to go over the rows

and pick up the sound, marketable potatoes in one basket, then gather all the seed stock in another basket or box and put the injured ones in still another. These boxes or baskets should be loaded on a wagon with springs and hauled direct to the storage house. If the potatoes are to be stored in baskets, boxes, or crates, the different grades should be put by themselves, and when stored in bulk they should be placed in separate bins. By following this method it will not be necessary to grade the potatoes at the storage house when putting them in. This will effect a saving of time, reduce the loss by decay, and save the cost of extra handling. The potatoes should be emptied into the bins as carefully as possible, to prevent bruising. Sweet potatoes can be stored in boxes, hampers, baskets, or bins with satisfactory results. The preference of the individual grower will determine the method to be employed.

Each year, after the sweet potatoes have been marketed, the storage house should be thoroughly cleaned and disinfected before it is used again. All dirt and refuse should be cleaned out and all parts of the interior sprayed or washed thoroughly with a solution of formalin (1 pint of formalin to 10 or 15 gallons of water). Diseased roots should not be thrown on the manure pile or on land to be used for sweet potatoes; the safest plan is to burn them.

#### FILLING THE BINS.

In filling the storage house, the workmen should begin at the back end of the bins and pour a layer of sweet potatoes about 2 feet deep in all of the bins rather than fill one bin at a time. If the bins are 8 or 10 feet long, it is a good plan to divide them into two parts. By nailing cleats to the middle support of the bins, as shown in figures 7 to 10, the partition can be raised as the bins are filled. The partition boards should have some space between them to allow free circulation of air. A 1-inch block between the boards will be satisfactory to separate them. By dividing the bins in this way, the back of the bin can be filled without climbing over the potatoes in the front part. When taking the potatoes out, those in one section of a bin can be removed without disturbing the remainder. This is very important where they are sold in small quantities.

#### CURING SWEET POTATOES.

While the newly dug sweet potatoes are being brought in, a fire should be kept up in the storage house to dry off the moisture. A temperature of 80° to 85° F., with plenty of ventilation, should be maintained for 10 days or 2 weeks, depending on weather conditions and the variety of potatoes. Ventilation is absolutely neces-

sary, and even if it is not possible to keep the temperature up to 80° F., it is necessary to leave the doors, windows, and ventilators open, so as to drive out the moisture-laden air. The doors and windows may be closed at night, and should be kept closed on cloudy days. Some of the ventilators in the floor and through the ceiling should be kept open throughout the curing period, even in cloudy or rainy weather. The air inside the house should be kept warmer than the outside air during the curing period. This will prevent moisture from being deposited on the walls. As the air warms, it expands and takes up moisture. When it cools it contracts and gives up its moisture. This makes it important to get the moisture-laden air out of the house by ventilation. When the potatoes are thoroughly dried or cured, the temperature should be gradually reduced to 55° F. and kept as near that point as possible during the remainder of the storage period. If the temperature goes below 48° F., a fire should be made or the house opened in the middle of the day whenever the temperature on the outside is high enough. When the temperature goes above 60° F., the house should be opened in the cool of the day, to lower the temperature to 54° or 55° F., and then closed. In mild weather the ventilators in the roof may be partly open all the time, but they should be closed in cloudy or cold weather.

#### METHODS OF HEATING A STORAGE HOUSE.

A small house can be heated with a sheet-iron stove that will burn knots and other pieces of wood. Coal stoves may be used if preferred, but air-tight wood stoves will serve the purpose. It requires a longer time to get up heat with a coal stove than with a wood stove, and this is one disadvantage in using coal. Often all that is necessary to raise the temperature a few degrees is to start a little wood fire. In a commercial storage house a hot-air heater or a hot-water boiler, with pipes around the walls, would be preferable to a stove, but a house that will hold as many as 10,000 to 25,000 bushels of sweet potatoes may be heated with good stoves. The location of the stoves in the house depends on the size of the house and the direction of the cold winds. Ordinarily, where one stove is used, it is placed near the center of the house, but if the cold wind strikes one end the stove should be in that end. Some storage houses have a small stove in each end, and this is the best arrangement for a long house. Others have a stove in one end, with the pipe entering the chimney at the other end. Considerable open space should be left around the stove to prevent the potatoes from being injured by excessive heat. In large houses it is desirable to put in partitions to make separate rooms. Each room should have

a stove or other independent heating unit. Small storage houses are sometimes heated with oil stoves with satisfactory results. In most sections of the South it is not necessary to keep heat in the storage house much of the time. It is only necessary to build a fire when the temperature in the house goes below 48° F. or during wet weather, when moisture is likely to deposit on the walls. When the outside temperature goes to 60° F. or above during the day, the house may be opened for a few hours, provided the atmosphere is fairly dry, in order to raise the temperature inside to the desired point. When the temperature reaches 55° F. the house should be closed. By giving close attention to opening and closing the house,



FIG. 12.—A pile of sweet potatoes ready to be covered with cane tops and soil. Note the ventilating hole which extends through the center of the pile.

very little artificial heat will be needed in the lower South after the curing period.

#### STORAGE PITS AND CELLARS.

While it is advisable to build storage houses similar to the types already described, it is nevertheless realized that it will be many years before sufficient houses are available to care for the entire crop. Therefore, the best methods of storing in pits or banks and in outdoor cellars are here described. The main disadvantages in the pit or bank method of storage are (1) the large amount of loss due to decay; (2) the inferior quality of the sound potatoes, due to lack of proper curing; (3) the loss on the market, because banked potatoes will keep for such a short period after being removed; and (4) the inconvenience of getting the potatoes when needed, especially during cold or rainy weather. If it is impossible to build a storage house the potatoes should be cared for in some other way, and it is much better to store in pits or outdoor cellars than not to store them at all. By using the

best methods of banking known, the loss by decay can be materially reduced but not eliminated, because it is impossible to control the moisture and temperature.

Storage pits should be located where the drainage is good. In making a pit a little of the surface soil is thrown back to form a level bed of the size desired. It is a good plan to dig two small trenches across the bed at right angles to each other, to provide for ventilation at the bottom. Lay boards or place troughs over the trenches, and at the point where the trenches cross set a small box on end to form a flue up through the pile of potatoes, as shown in figure 12. The earth floor of the pit is covered with 4 or 5 inches of straw, hay, leaves, or pine needles, and the potatoes are placed in a conical pile around the flue. A covering of straw, hay, or similar material is put on the pile



FIG. 13.—A number of sweet-potato banks, illustrating the method of ventilation by the use of troughs at the top of each pile.

and over this a layer of soil. The covering of soil should be only a few inches thick at first, but increased as the weather gets cold. Keep the ends of the trenches and flue open until it is necessary to close them to keep out the frost. It is better to make several small pits rather than one large one, because it is best to remove the entire contents when the pit is opened. Figure 13 shows a number of pits with a trough ventilator placed over the top of each pile of potatoes.

A type of storage cellar similar to the one shown in figure 14 is often used in the South for storing sweet potatoes. This form of storage is much better than pits or banks. The potatoes can be cured in the outdoor cellar, and it is easier to get them out when wanted for the table or for market. A good type of outdoor cellar can be made as follows: Set a line of posts for the center supports and on these posts

put a ridgepole. Against the ridgepole place one end of planks, poles, or slabs, with their opposite ends resting on the ground on either side. The ends of the inclosure are boarded up, a door being provided in one end. The structure is covered with sod to a thickness of 5 or 6 inches. It is a good plan to put a ventilator through the top and to leave two or three openings in the sides near the ground. Provision should be made to close all these openings during cold or wet weather. By placing a small stove in the storage cellar the potatoes can be cured in the way that has been described for the storage house. The potatoes are usually piled on a layer of straw, leaves, or pine needles placed on the ground. A better method is to build a slat floor a few



FIG. 14.—A type of outdoor cellar used in some sections of the South for storing sweet potatoes. This structure should have openings near the bottom and through the top for the purpose of ventilation.

inches from the ground and pile the potatoes on the floor. This floor will allow the circulation of air under the potatoes, which will aid in curing them.

#### MARKETING SWEET POTATOES.

One reason why southern farmers have not received better prices for their sweet potatoes is that they have not used proper methods of handling and marketing. In many cases the potatoes are badly bruised and cut in digging, put in bags or rough barrels without grading, and rushed on the market when there is an oversupply. The secrets of success in getting high prices are to carefully grade, clean, and pack the product and to put it upon the market when there is a good demand. The greatest demand for sweet potatoes is, as a rule, from the middle of December to the middle of March.

When the potatoes are to be marketed they must be carefully graded, no matter how well the grading had been done when they were

put in the house. The market demands a medium-sized uniform type of sweet potato, free from bruises or decayed spots. In grading, the large, overgrown, crooked, broken, or bruised roots should be kept at home for feeding or for canning. The best potatoes will bring a higher price when separated from the culs. Two market grades are sometimes made, the "extra selects" or "primes" and the "seconds" or "pie stock," but the southern farmer will do well to make just one market grade and keep the others for feeding to his live stock.

After careful grading, the sweet potatoes should be put in clean, neat, attractive packages. Bags should never be used, as the potatoes in them become badly bruised when handled. The standard



FIG. 15.—Hampers of sweet potatoes separated into two grades. This type of package is used to a considerable extent by growers in New Jersey.

veneer potato barrel with a burlap cover is often used in summer or autumn, but for winter shipment the double-headed stave barrel or tight box is used. The smaller type of package, such as the bushel hamper (fig. 15.), bushel box, or basket, is becoming more popular each year. A neat and attractive package of well-graded potatoes will bring a good price at almost any time, even when the market is overstocked with inferior goods.

Sweet potatoes when shipped during the winter must be protected from the cold. When a potato becomes chilled its quality is impaired, and decay soon follows. In cold weather the package should be covered with paper and the cars heated, in order to prevent chilling the potatoes. Some shippers find it an advantage to line their baskets and barrels with paper.

